ELECTRICAL WORLD *News Issue*

MAY 14, 1949

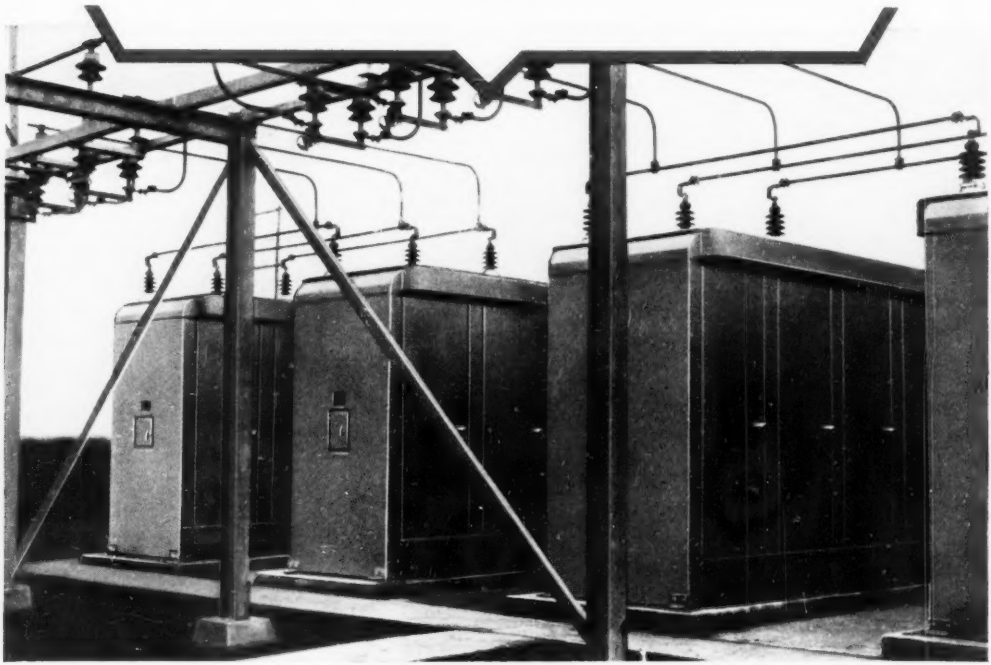
A McGRAW-HILL PUBLICATION

A. E. Holloway, President of San Diego Gas & Electric Co

New Capacitor Equipments

using 25-kvar capacitors

Cut Installed Cost



This is one of the largest installations of capacitor equipments made to date. It consists of General Electric 5100-kvar equipments of the newest design, employing 25-kvar Pyranol* capacitors with glass bushings.

General Electric has recently introduced a new line of power capacitor equipments using 25-kvar capacitors. Price of the equipment, including capacitors, is materially lower per kvar than those previously available. The housing is about 30% smaller, cutting foundation costs and saving space. And the number of individual capacitors is reduced 40%.

MANY IMPROVEMENTS TOO

Besides their lower installed cost and smaller size, these new equipments bring you several improvements that will interest operating personnel: The roof terminal bushings are arranged so as to simplify bus work, particularly where banks are used. Improved interlocking of doors with line breakers and grounding switches precludes possibility of reaching charged capacitors. Thermostatically-controlled fans provide air circulation within the housing when needed.

For information on these equipments, call your G-E sales office. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

*Reg. U.S. Pat. Off.

GENERAL ELECTRIC

407-15

The Electrical Week

The electric utility industry has survived the effects of the Public Utility Holding Company Act and the operations of the SEC. Holding companies are smaller but more compact. Some have gone out of existence. But all in all the electric utilities are flourishing . . . At Chicago, Edison Electric Institutes engineering committees held a three-day session. Theory went out the window as the engineers got together to solve the practical problems of the industry . . . Indiana utilities believe in taking the younger employees into their confidence. Last week at Indianapolis, the young men had a conference of their own. Outstanding leaders in all fields of the industry were there to brief them . . . EEI and AEIC meter committees met at Boston. The manufacturers were there to explain the latest developments in this rapidly growing field . . . And output last week dropped to only 3.9% above the corresponding week of 1948.

The Atomic Energy Commission is to have two new members if the Senate approves. Named by President Truman to serve until June 30, 1950 are Gordon Dean, professor of law, University of Southern California, and Dr Henry DeWolf Smyth, chairman of the Department of Physics, Princeton University. They succeed W. W. Waymack and Dr Robert F. Bacher who both resigned.

Legislation permitting the Rural Electrification Administration to make loans for farm telephone service has been sidetracked. The House still may pass the telephone bill at this session, but it will be amended on the floor to force REA to make loans to private companies as well as non-profit and public bodies. The Senate isn't likely to vote on the bill this year.

The Administration is under growing pressure for reducing wartime excise taxes, including those on electrical appliances. But it is unlikely that they will be reduced. The government needs the money.

ELECTRICAL WORLD will celebrate its 75th anniversary on May 21 by publishing the largest issue in its history. All regular departments including news will be omitted. The issue will trace the development of the electric utility industry including the technical progress made since Edison started his first station.

Imitation is the sincerest flattery, and American electric utilities can be flattered by the number of foreign electric utility experts who are inspecting or who have inspected American utilities in recent months.

Appliance dealers who have been using short-wave radio to dispatch service trucks probably will have to give it up. The Federal Communications Commission's new rules on mobile radio limit use of such frequencies to public health and safety services. An appliance merchant doesn't qualify.

Risking being tagged with the Communist label, ELECTRICAL WORLD *can claim a larger circulation in Russia than can* Time. *EW has 151 subscribers,* Time *only 13. What is more the Russians pay $20 a year, $30 for two years, or $40 for three years of EW.*

At last the public and private power interests of Kentucky have agreed on something. Under the direction of the Public Service Commission they will make a joint study of power facilities and needs in the state.

A wave of strikes for fourth-round wage increases will drive power output down to a little above last year's level. If widespread, the output curve could even drop below that of 1948.

Pennsylvania Power & Light Co, the largest consumer of anthracite coal in the world, stores coal like hydro systems store water. It has a 500,000-ton stockpile at its Sunbury Plant which is still under construction.

Total steam generating capacity in central stations has passed the 40 million kw mark. Total on Apr 1 was 40,215,159 kw. Percentagewise, thermal capacity reached the highest mark in over a decade, 72.6%. There is every likelihood that this percentage will continue to rise for the next two years.

Notes From The News

The government has broken off five-year negotiations for purchase of the Salt River Valley Water Users Association generating plants located in central

Continued on following page

FIRST PRESIDENT of the Society of Women Engineers is Phyllis Evans, Drexel Institute of Technology. The new organization has members at 19 Eastern universities and plans to expand

Arizona . . . Right-wing forces in the United Electrical Workers, CIO, will make a determined bid to oust Leftist leaders at the next election . . . Business leaders of O'Neill, Neb., are opposing the plan of the Consumers Public Power District to dismantle its local generating plant and erect it in Valentine. O'Neill interests want the 1,000-kw plant retained as a standby plant . . . University of Florida, Gainesville, will conduct its 24th short course and conference on electric meters, May 16 to 20 . . . A 4.3-kv power line of the South Carolina Electric & Gas Co broke and fell into a pasture. The owner found 20 of his cows dead and lying in a straight line along the conductor . . . Argentina is planning to ration electricity because of the shortage of oil and coal . . . The lead of the International General Electric Co in advertising the American way of life abroad is to be followed by a number of other corporations.

At the All-America Canal plant No. 4 of the Imperial Irrigation District in California, black widow spiders swarmed over an oil circuit breaker. The spiders were killed, but power was off for 30 minutes . . . Because the Cleveland Electric Illuminating Co won't put its Clifton Boulevard lights on poles of the Cleveland Transit System at the city's terms, the municipal administration is threatening not to renew the utility's franchise for lighting the boulevard when its franchise expires in 1952 . . . On May 20, President Truman will press a golden key in Washington to start power flowing from the tenth generator at Grand Coulee Dam.

British Columbia Electric Railway Co has put the second 62,000-hp unit on the line at its Bridge River hydro plant . . . Lead has dropped to 14c a lb. and copper to 18.5c . . . When the Berlin blockade is lifted, the Russians have said that electricity will also start flowing from the Soviet section of the city into the Western sector . . .The Arizona Power Authority has applied to Interior Secretary Krug for all of the power from the proposed Bridge Canyon Dam on the Colorado River . . . Savannah Electric & Power Co will increase its rural line extension minimum guarantee from $9 to $15 a mile per month . . . Ernest R. Acker, EEI president, has proclaimed June 1 as "E-Day" (Electric Day). On that day all members of the electrical industry are urged to publicize the industry's new slogan "Of Course—It's Electric!"

Financial:

A $459,000 issue of short-term Seattle City Light bonds has been sold for $527,000, a premium of $68,000, declared to be the best price ever offered for any Seattle municipal securities . . . Virginia Electric & Power Co has received authorization of the Virginia Corporation Commission to issue $20 million of first and refunding mortgage bonds . . . Winnipeg Electric Co has increased its semi-annual dividend on common from 50¢ to 70¢ a share . . . Rochester Gas & Electric Corp has been authorized by the New York PSC to issue 50,000 shares of $100 par preferred stock. Dividend rate is to be 4¾% . . . Westchester Lighting Co has been authorized by the New York PSC to issue $12 million of 3%, 30-year bonds. Proceeds are to be used to redeem outstanding 4% bonds due in 2004 and to apply on a debt owed parent Consolidated Edison Co.

Legislation:

Hawaiian Electric Co and other Honolulu utilities have defeated a legislative effort to force them out of the appliance business . . . A bill has been introduced in the South Carolina General Assembly to exempt the Duke Power Co plant now under construction on the Saluda River from Anderson County taxes for five years.

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SEC Action under the Public Utility Holding Company Act

	Orders under Sec 11(e)			Reorganization Plans under Sec 11(f)			Orders under Sec 11(b)	
Fiscal Year	Approved	Disapprov.	Dismissed Withdrawn	Approved	Disapprov.	Dismissed Withdrawn	11(b)(1)	11(b)(2)
1938	4	0	0	0	1	0	...	...
1939	4	0	0	4	0	2	...	...
1940	2	0	3	2	2	4	...	...
1941	8	1	4	0	0	0	2	2
1942	14	0	4[2]	1	0	1	11	6
1943	30	0	3	1	0	0	8	8
1944	39	2[3]	2	1	0	2	8	9
1945	36	1[4]	4	4[10]	0	0	4	1
1946	40[5]	0	9	1	0	0	4	2
1947	45	0	4	1	0	0	1	3
1948	27[6,7]	1[8]	7	0	0	0	1	1
1949 (to 3-15-49)	25	1[9]	0	1	0	0	1	5
Total	274	6	40	16	3	9	40	37

[1] These, in some cases, involve entire plans, in others, steps of an overall program
[2] Stockholders plan dismissed
[3] Plan disapproved in part
[4] Declaration denied effectiveness
[5] Order approving plan vacated
[6] Commission's order approving plan reaffirmed
[7] District Court requested to remand plan to SEC
[8] Declaration supplemental to plan denied effectiveness
[9] Stockholders plan rejected
[10] Approval rescinded in one case

Divested, Reorganized but Prosperous

Electric Utilities Flourish Despite Action of SEC under Public Utility Holding Company Act; Work of Reorganizing Industry Nearly Completed

ELECTRIC AND gas utilities are experiencing record financial health today, with reorganization under the Public Utility Holding Company Act of 1935 just about completed. This comes 14 years after predictions that neither industry would survive the Act's effects.

A total of 470 companies with assets aggregating $11.3 billion have been involved in direct divestment proceedings of the Securities and Exchange Commission. Of these, 395 companies with assets of $6.972 million have been through the wringer—they are no longer subject to the Act.

Another 200-odd holding companies and their subsidiaries among the 705 companies still subject to the Act are in various stages of carrying out divestment orders. And the direct divestments do not tell the entire story. All told, 1,431 companies of the 2,136 that have been subject to the Act have slipped out, through SEC exemptions and divestments and disposals made without direct Commission action. Many of the latter were dissolved, but an estimated 800 surviving companies have by some means satisfied the requirement, in the Act's Section 11, for elimination of overcapitalization and excessive monopoly.

Substantial integration has been attained in terms of Section 11 (b) (1), which limits holding companies to a single utility system "in one state, or in adjoining states" and calls for disposal of properties neither "incidental" nor "economically necessary" to the principal utility operations of the holding company. Whereas in 1940 a dozen holding company systems were operating electric or gas utilities in 10 to 20 states, today only three systems still control properties in more than 10 states. Twenty-nine, a majority of the surviving systems, are operating in four states or less. SEC also has used this authority to separate jointly owned electric and gas operating utilities and to get holding companies out of widespread street railway, ice plant, municipal water, and other non-essential operations.

TREND TOWARD LOCAL INTEGRATION

No. of Holding Co. Systems Providing Electricity or Gas in	1940	1948
20 or more states	2	None
15 to 19 states	3	None
10 to 14 states	7	3
5 to 9 states	17	13
3 or 4 states	17	13
1 or 2 states	10	16
Total	56	45[1]

[1] Includes all systems subject to Act except Engineers Public Service Co, now liquidating and without any subsidiaries.

Under the so-called "death sentence" clause, 11 (b) (2), SEC has trimmed top management companies while lopping operating properties from holding company systems under 11 (b) (1). The "death sentence" permits SEC to order dissolution or disposal of any company that "unduly or unnecessarily" complicates a holding company system or which "unfairly or inequitably" distributes its voting securities.

Although the Act authorizes SEC to obtain court aid in enforcing reorganizations, the Commission in practice has relied almost entirely on Section 11 (e), which allows holding companies to prepare their own reorganization plans and submit them to SEC for approval.

Voluntary compliance was anticipated both by Congress and by the Commission. But, starting in 1935, the holding companies chose to challenge the constitutionality of the basic registration requirements in the courts. This issue was not resolved until March, 1938, when the Supreme Court upheld an SEC suit to force Electric Bond & Share, largest of the holding company systems, to register. Court tests of Section 11 requirements followed. SEC lost several battles in lower courts, but won on all constitutionality questions when they finally went to the Supreme Court.

SEC's administration of Section 11

JOSEPH M. BELL, JR, president of New York State Electric & Gas Corp, greets a friend following his speech at the dedication of the Hickling Station. Closest to Mr Bell's right is Homer H. Chapman, manager of the Elmira Division of the company. Next to him is Edward W. Morehouse, vice-president, General Public Utilities Corp

has covered three distinct eras. From 1935 to early 1940 the Commission waited for the companies to submit voluntary reorganization plans. But the forthcoming plans failed to meet SEC specifications, and in the spring of 1940 it began issuing orders to individual holding company systems for compliance with Section 11. These orders began producing reorganization programs of the type and number desired in 1942, when 14 plans were approved.

The directed reorganizations are still primarily on a "voluntary" basis. SEC simply points out the desired results of reorganization and permits the holding companies to work out the details and timing of actual divestments. In passing on such plans, the Commission demands only that they (1) represent a step toward compliance with 11 (b) (1) and 11 (b) (2) and (2) afford reasonable protection to the rights of the investors affected.

Investors have two "days in court." They may participate in SEC's hearings on reorganization plans and in the reviews of these plans by a federal district court. The holding companies generally ask the Commission to institute the court proceedings, as provided by Section 11 (e).

The third era of Section 11 enforcement, the period of SEC processing of reorganization programs, is rapidly drawing to a close. Staff work in SEC's Public Utilities Division declined from a high of 214.8 man-years in fiscal 1942 to 157.9 in fiscal 1948, a drop of almost 30%. And the number of applications and declarations disposed of dropped more than 80% in four years, from 1,929 filings in fiscal 1944 to 906 in fiscal 1948.

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Heads Kentucky Co-ops

H. L. Spurlock, McKee, has been elected president of the Kentucky Rural Electric Cooperative Corp.

Registrations Under the Public Utility Holding Company Act

Year	No. of Holding Company Systems	No. of Holding and Sub-holding Companies	No. of Electric & Gas Subsidiaries	Other Subsidiaries	Total No. of Companies	Assets (Millions of $)
1939	55	177	751	644	1,572	$13,917
1940	57	146	689	658	1,493	14,499
1941	55	146	673	638	1,457	15,129
1942	55	137	616	589	1,342	15,997
1943	54	137	576	504	1,217	16,079
1944	55	135	487	516	1,138	15,773
1945	54	126	434	501	1,061	16,279
1946	50	103	367	428	898	15,154
1947	52	89	336	409	834	15,350
1948	46	73	309	323	705	14,488

N. Y. State Electric & Gas Dedicates Hickling Plant

Almost 350 civic leaders of south central New York state attended ceremonies marking the dedication of the New York State Electric & Gas Corp's Hickling Station at East Corning last week (May 5).

Fred Hickling, a cadet engineer for NYSE&G heard Board Chairman Ralph Jennison dedicate the station to the memory of W. G. Hickling, his father, who was vice-president and general manager of the corporation before his death in 1947.

Erected on the banks of the Chemung River, the 35,000-kw station pushed the generating capacity added by NYSE&G since 1942 well past 100,000 kw. Three more machines, in existing plants at Bainbridge, Dresden, and Binghamton, remain for completion before the end of 1951, Jennison declared. With their completion, the corporation will have added almost 300,000 kw to its capability since 1942.

President Joseph M. Bell, Jr., described the financial aspects of the corporation's expansion program. In 10 years, he said, the company has spent $78,000,000 on new facilities. There remains a planned expansion estimated to cost $54,000,000 more before the end of 1951.

"We propose to do everything in our power to warrant the confidence of investors in our securities and to preserve the credit of the company to the end that it shall be able to continue to supply the kind of service that our customers demand."

In groups of 10, the guests, most of them industrialists, businessmen, and political leaders of the Southern Tier, toured the new station after Arnold W. Milliken, vice-president, described its electrical characteristics and the place it occupies in the integrated NYSE&G system.

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New Brunswick to Build $2 Million Steam Plant

Construction will start this year on a 16,750-hp steam power plant, to be built at Grand Falls, N. B., for the New Brunswick Electric Power Commission at a cost of about $2,220,000. Work is expected to be completed within two years.

Funds for the project will be borrowed. The New Brunswick legislature has authorized the Commission to increase its borrowings by $10 million. The remainder of the sum will go for approved capital expenditures and completion of projects already begun.

OHIO BRASS COMPANY

BARBERTON DIVISION - BARBERTON, OHIO, U. S. A.

TO: **PENNSYLVANIA TRANSFORMER CO.**

FOR: **CARNEGIE-ILLINOIS STEEL CORP.**

These two 69-22-kv Pennsylvania transformers supply a total of 50,000 kva for one 70-ton electric furnace, two 35-ton furnaces, plus large blocks of power for auxiliary equipment, located at the Duquesne Works of Carnegie-Illinois Steel Corporation. Some of the highlights of these unusually heavy-duty units are... "Pre-compressed coils, detachable uni-row radiators, straight line tap changers"...

AND (B) BUSHINGS....ONE OF THE FINEST COMPONENTS OF ANY TRANSFORMER

Ohio Brass

2988-H

MANSFIELD, OHIO

YOU CAN BE **SURE**.. IF IT'S

Westinghouse

"'CSP' saved us $17,465.50 in our urban radial system"

So said this midwestern operator after installing 650 Completely Self-Protecting distribution transformers.

When the 2,400-volt radial feeders for urban and suburban areas outside the downtown network system became seriously overloaded, distribution voltages were stepped up to 7,960/13,800 volts wye.

Economically, the utility found this comparison of costs *beyond the price of the basic transformer:*

FOR CONVENTIONAL INSTALLATION		FOR "CSP"* INSTALLATION	
Arrester, installed	$30.00	Additional cost of "CSP" over the conventional transformer—includes built-in lightning and thermal protection plus load indicating light.	$34.13
Fuse mounting and fuse, installed	20.00		
Two 8 ft. crossarms, installed	12.00		
3 ft. crossarm, installed	4.00	Higher pole for secondary lead clearances	5.00
Total	$66.00	Total	$39.13

Simple arithmetic makes 650 "CSP" installations save $17,465.50. What's more, *real* protection from overload was secured—with semiautomatic load check as a bonus. Conventional transformers with fuse links could not supply this protection and still withstand lightning surges.

One thing you can be sure of: the built-in protection of "CSP" saves installation costs. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

J-70526

**Trademark—Reg. U. S. Pat. Off.*

HERE'S PROOF FROM U. S. A.—Thirty case histories of Completely Self-Protecting transformers, with names, dates, places, facts and figures. Get your copy of B-4248.

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SINGLE PHASE THREE PHASE BANKED SECONDARY

—that will remain a credit to your judgment in 20 years

The high quality of OLIVER Pole Line Materials is demonstrated in the length of service they provide. Because OLIVER products are properly designed, made from the best materials, and thoroughly protected against corrosion and weathering, they give the extra service that means long-range economy.

Specify OLIVER Pole Line Materials for greatest satisfaction—now and for life. You will never regret your choice!

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CORPORATION

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DISCUSSION PANEL on "Rating of Overhead Transmission Conductors" at meeting of EEI T&D Committee at Chicago comprised: A. H. Kidder, left, Philadelphia Electric Co; Charles T. Hatcher, Consolidated Edison Co of New York; G. E. Dean, Public Service Electric & Gas Co, Newark; William E. Losie, Detroit Edison Co; Moderator L. G. Smith, Consolidated Gas, Electric Light & Power Co of Baltimore; L. F. Hickernell, Anaconda Wire & Cable Co; Frank E. Sanford, Line Material Co; and Leonard M. Olmstead, Duquesne Light Co

Practical Problems Top Theory as EEI Engineering Groups Meet

PRACTICAL problems of utility system operation far outweighed theoretical discussions at last week's meetings of the Edison Electric Institute engineering committees at Chicago. Registrations for the three-day sessions of the Transmission and Distribution, Electrical Equipment, and Accident Prevention Committees approached 300.

Round-table discussion technique was used by Chairman T. J. Brosnan of the T & O Committee to stimulate a lively discussion of (1) rating of overhead transmission conductors, (2) investment in underground plant, and (3) operation of underground plant.

L. F. Hickernell, Anaconda Wire & Cable Co, introduced the discussion of the "rating of overhead transmission conductors" with a suggested standard method of calculating conductor current ratings together with a proposed set of "standard reference conditions" for normal and emergency conditions. Subsequent panel discussion revealed a lack of agreement on either a standard ambient temperature, maximum temperature, or allowable annealing factors to be used in calculating ratings.

F. E. Sanford, Line Material Co, suggested need for an investigation to develop basic data on time-temperature annealing characteristics of copper wire that would let engineers evaluate technical and economic factors that influence normal and emergency loading of conductors. This view drew approval "up to a point" from Hickernell who said enough data is now available for a working table of data.

In the panel discussion of "investment in underground plant" a statement of E. W. Oesterreich, Duquesne Light, that buried cable underground systems when installed on a broad scale using mechanical equipment can be had at little more than the cost of overhead was immediately challenged by W. R. Bullard, Ebasco Services; J. E. McCormack, Consolidated Edison Co of New York; and J. A. Pulsford, Public Service Electric & Gas Co, Newark.

D. K. Blake, General Electric Co, said that minimum underground construction would cost 50% more than overhead; more if minimum underground was strengthened to be more reliable. McCormack said that in large new residential developments in Greater New York minimum underground cost about twice overhead.

In the panel discussion on underground system operation, J. W. Anderson, Philadelphia Electric Co, and J. A. Pulsford took opposing views on the removal of subway transformers from vaults for painting. Pulsford concluding that painting in the manhole was impractical, that the paint didn't last. Anderson's view was that removal for painting was a "luxury". Pulsford said that network transformer loadings can be carried up to 150% of rating instead of the 125% considered conventional. Most economical loading on the New Jersey system is that which will produce a 39-year transformer life.

A relay that promises to solve prob-

NEW CHAIRMAN of EEI'S T&D Committee, J. E. McCormack, Consolidated Edison Co of New York, receives gavel from predecessor, T. J. Brosnan, right, Buffalo Niagara Electric

lems of restoring service to distribution feeders under the severe pick-up conditions after sustained outage, was described by L. J. Audlin and M. H. Pratt of Central New York Power Corp and A. J. McConnell, General Electric. Details are promised for an early issue of ELECTRICAL WORLD.

J. L. Wagner, International Business Machine Co, described a system for correcting electric clocks in a given building which involves impressing a 3,500 cycle carrier frequency on building wiring. Danger of false operation of the clocks by stray signals from the utility system seemed more likely than the reverse situation according to A. B. Coyle, Line Material Co. W. C. Phillips, New England Power Corp, warned that stray clock signals were more apt to be troublesome on network systems than elsewhere.

May Limit Carrier Use

Phillips also announced the release by FCC of new frequency allocations for utility radio (EW, May 7, p 57). He disclosed that FCC is considering an amendment to part 15 of its rules governing restricted radiation (carrier current) devices that would impose some system of regulation on utility use of carrier for communication and control.

Three particular outstanding papers marked the open sessions of the Electrical Equipment Committee, chairmaned by B. Van Ness Jr, Safe Harbor Water Power Corp.

Field Test Results Summarized

Lloyd J. Hunt and J. H. Vivian summarized results of field tests and experience with operation of large synchronous machines on Southern California Edison System with neutrals grounded through potential transformers connected to ground detecting devices. Recent installations have been grounded using a resistance load connected to the secondary of a distribution transformer. No high transient over-voltages are present during arcing faults, and harmonics have never been a problem. Oscillograms indicate more distress during arcing grounds with resistor loading, but no conclusions are reached as to which method is better. Experience leaves the authors convinced that neutrals of synchronous condensers connected as they are on the Southern California system should be ungrounded and ground detectors installed.

R. G. Hooke, Public Service Electric & Gas, interpreted standards that have been laid down on the system to define boundaries of service quality to be observed by engineers in planning system additions. Investment per kvah of interruption avoided is one of the significant indexes used by the New Jersey utility to compare the merits of each increment of system capacity. Hooke's rules for system planning are nine in number and range from the basic assumption that "preparation must be made for forced outage of any single piece of equipment . . ." to the final one that "installed capacity shall not be less than the peak load, adjusted for diversity and increased by 15%.

G. B. Dodds and W. E. Marter, Duquesne Light, discussed the application of reactance relay protection to 2,300-v station service buses at Phillips Station. Here auxiliaries' load is divided between two buses supplied from independent sources. The paper shows that reactance relays are to be preferred for this service over either overload relays or bus differential protection in ability to discriminate between emergency load transfer currents and fault currents.

D. C. Stewart, Buffalo Niagara Electric Co, proposed a new index for measuring the performance of accident prevention programs that gives more equitable weighting to accident frequency and the severity of accidents reported. Present methods of evaluating performance, in Stewart's view, place undue emphasis on accident frequency. He felt that the proposed index would show that performance of individual utility safety programs was far closer than accepted indexes show.

Indiana Utilities Brief Young Men on Meeting Problems of Industry

MANAGEMENTS of Indiana's electric utilities took their younger employees into their confidence last week. In a two-day session at Indianapolis the 238 registrants at the Young Men's Utility Conference were told of the problems that face the industry, how the industry is solving those problems, and the responsibilities of the young men to help.

The conference, an annual affair, is sponsored by the Indiana Electric Association. The Young Men's Forum of the Indianapolis Power & Light Co was host for the conference.

E. D. Anderson, vice-president of the IEA and of the Northern Indiana Public Service Co, told the conferees that they have two responsibilities. First to (your) company and the industry to devise better methods, techniques, and ways of doing things. Second to take the leadership in the fight to preserve free enterprise.

These responsibilities were stressed over and over again. J. Calvin Hill, Indiana & Michigan Electric Co, pointed out that the one great opportunity the young man has is to fight the startling advance of "isms" in all our phases of life.

P. L. Smith, president of the National Association of Electric Companies, emphasized that the taxpayers must be taught that public power means higher taxes for them. He said that while Americans do not want Socialism, they will accept whatever the government is willing to give them —thus embracing Socialism without realizing it.

Going on from this point Dr G. Edward Pendray, public relations consultant for the American Gas & Electric Service Corp, asserted that the struggle of business-managed public utilities against public power is primarily a struggle of propaganda . . . "with the public power people past masters of the art."

"Publicly managed institutions notoriously acquire a 'public be damned' point of view," Pendray claimed. "Well-managed business-operated institutions know well that the customer's interests are paramount and that no institution which doesn't depend upon taxation for its ultimate support can afford to offend the customer or give him less than the best in service. This is one of the great advantages business-managed utilities have over government-managed utilities. It is one, unfortunately, which has been neglected by many utilities in the past and this may be a root cause of our present situation."

John H. Smale, IP&L, suggested that the utilities hold open forums for their younger employees in which department heads and supervisors take part. These forums would be used to explain the operations of the utility and how the young men can do their work better and gain advancement.

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City to Buy Water System

Pacific Power & Light Co has agreed to sell its water system in Kennewick, Wash., to the City for $250,000. Kennewick will issue revenue bonds to finance the purchase.

E. H. HOWELL, right, manager of sales for the Meter and Instrument Divisions of General Electric Co, shows an I-50 watthour meter to a group of EEI-AEIC committeemen visiting the Somersworth plant of GE. In the group, left to right, are L. P. Hannaway, plant manager; H. M. Johnson, New England Electric System and chairman of the EEI Meter and Service Committee; N. M. DuChemin, manager of GE'S Meter and Instrument Divisions; H. A. Brown, Rochester Gas & Electric Corp and chairman-elect EEI Meter and Service Committee; G. M. Robertson, Philadelphia Electric and chairman of joint EEI-AEIC-NEMA Meter Committee; and F. A. Redding, Southern California Edison Co

Advances in Meters and Metering Practice Discussed by 2 Groups

THAT METERING engineering is attaining a broader professional status was evident last week as the Meter Committees of Edison Electric Institute and the Association of Edison Illuminating Companies met for two days at Boston to discuss progress. Many manufacturers of electrical measuring equipment reviewed their latest developments for the benefit of the 75 persons present.

Irwin L. Moore, president, New England Electric System, spoke informally on the dangers of Socialism but revealed some improvement in public attitude toward business-managed utilities. Heartening progress is being made in employee relations and understanding of industry economics, he claimed.

Notable advances in service entrance cable have followed the recent national committee meetings. Underwriters Laboratories has given approval to (1) The first neoprene jacketed service cable (United States Rubber Co), (2) an assembly of neoprene jacketed Type RW insulated conductors with a bare neutral cable and without an outer jacket, intended for overhead drop and buried service (Collyer Insulated Wire Co), and (3) a non-metallic sheathed cable with neoprene insulation designed to be fungus and moisture resistant (Anaconda).

Operating men are seeking more cost data and field experience on installations of these conductors. It is believed that increased life would offset greater costs.

Manufacturers are cooperating in the study of dimensional standards for test blocks and other meter service devices. Ratings suggested as standard for metering current transformers were reviewed. Tentative listings specify the wound or bar type transformers (dry type with Class A insulation). Eleven ratings from 10/5 to 2,000/5 amps inclusive were suggested. Accuracy class was named as 0.3 out at 100% load and 0.6 out at 10% load. Other suggestions were maximum temperature rise 55C when carrying continuous thermal current rating and a standard secondary burden of B-0.2.

Summarizing a questionnaire, an EEI subcommittee on meter test switches concluded as follows: Standard specifications could be developed for 4, 7 and 10-pole test switches for use with instrument transformers by proposing two sequences for each switch. With possibly a few exceptions these appear acceptable to the industry. However, any change would inconvenience individual meter departments. The solution would be a universal base for all switches with standard drilling and equipped with friction receptacles designed that male pins, to which switch blades are attached, could be conveniently inserted by meter departments to conform to their present standards.

Progress is evident in safeguarding revenue metering equipment used in high-voltage installations. Separate metering compartments and increased space for both current and potential transformers in metal-clad cubicles are noted. Visible secondary wiring to facilitate checking of connections is favored.

A trip was made to the Somersworth, N. H., plant of General Electric Co where the manufacture of I-50 meters was studied.

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Utility Bureaus Merged in New Washington PSC

The Washington state departments of public utilities and transportation have been merged into one department under a three-man Public Service Commission which includes Owen Clark, former Director of Transportation, and Raymond W. Clifford, former Director of Public Utilities. The third member has not yet been named.

The Commission will act in a quasi-judicial capacity with supervision over the entire public service picture. Joint operation of the two departments will eliminate a great deal of duplication, while the services and technical knowledge of each department's personnel now will be available to both. A "substantial reduction" is expected in the staff of 100 or more persons employed by the two departments.

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Offers Degree in Utilities

The University of Tennessee next fall will offer for the first time an expanded course program leading to the master of arts degree in public utilities and transportation. The course will include public power, utility accounting, and rate construction.

AGGRESSIVE SALES PROGRAM is discussed at Southeastern Power Sales Conference by C. B. Vick, left, Florida Power & Light Co; W. P. McCutcheon, Birmingham Electric Co; and Julius Hall and C. B. Talley, Appalachian Electric Power Co. In the right panel, Claude J. Hendon, General Electric Co commercial vice-president, second from left, points to promotion material as power sales aids. Others are, left to right, Ben Askew, Georgia Power Co; F. W. McChesney, General Electric Co; and F. D. Hewes, Jr, Mississippi Power Co

SEC RULINGS

Montaup Electric Co. Fall River, Mass., has been authorized to issue and sell, from time to time, not in excess of $4,000,000 of unsecured promissory notes, the proceeds of which would be used to prepay $740,000 of outstanding 2½% short-term bank notes and to finance construction requirements through Mar 31, 1950. The new notes will bear interest at 2½% per annum, mature not later than one year less one day after issuance, and will be issued to The First National Bank of Boston. (Release No. 8961).

Long Island Lighting Co's common stockholders protective committee application for permission to solicit contributions from stockholders to help defray the expenses of the committee has been denied. Pursuant to a previous order, the committee had obtained authorizations from 2,081 holders of 788,455 shares (26%) of common stock to represent said stockholders in proceedings before the commission. The committee's request for authorization to solicit contributions of 5¢ per share from these stockholders was rejected. (Release No. 8965).

Ohio Public Service Co has received clearance of its $10,000,000 of 30-year first mortgage bonds to an underwriting group headed by Equitable Securities Corp. Equitable's winning bid provided for a 3% interest rate and a price to the company of 100.336% of principal amount, resulting in a cost of money to Ohio of 2.98298%. The bonds are to be reoffered to the public at 100.750%. (Release No. 8999).

Texas Power & Light Co has received authorization to make adjustments in its electric plant accounts based upon reclassification and original cost studies. Under its original studies filed in 1945, Texas Power reclassified $3,143,033 to its Account 100.5-Electric Plant Acquisition Adjustments, and $20,182,306 to Account 107—Electric Plant Adjustments. As a result of a field examination conducted by the commission's staff, these amounts have been changed to $3,089,718 and $20,535,626, respectively. A total of $19,925,961 of the latter heretofore has been disposed of. (Release No. 8983).

Power Sales Program Planned for Southeast

Utilities and electrical manufacturers are cooperating in planning what prospects indicate to be the most intensive power sales program ever undertaken in the South. Last week at Atlanta the Southeastern Industrial Power Conference brought out the many phases of the program.

General Electric Co sponsored the program for the first day, which was in conjunction with the meeting of the Power Sales Committee of the Southeastern Electric Exchange. The basic theme was the mutual opportunity of manufacturers and utilities to serve Southeastern industry. C. J. Hendon, commercial vice-president of GE at Atlanta, presented programs which the former could promote. Charles A. Collier, Georgia Power Co vice-president, gave the viewpoint of the utilities.

All of the speakers stressed the rapid progress industry is making in the South and the great need for industrial power. This need must be supplied by the utilities which must devote even greater efforts to their industrial sales programs in order to sell the output of their expanding capacity.

MEETINGS

Interstate Power Club of New York
May Meeting, Hotel Martinique, New York, May 16.

National Fire Protection Association
Annual Meeting, Fairmont Hotel, San Francisco, Calif., May 16-19.

Missouri Valley Electrical Association
Annual Meeting, Hotel President, Kansas City, Mo., May 17.

American Standards Association
Company Member Conference, Benjamin Franklin Hotel, Philadelphia, Pa., May 19-20.

Pennsylvania Electric Association
Meter Committee, Spring Meeting, Abraham Lincoln Hotel, Reading, Pa., May 19-20; Rural and Advertising Committees, Joint Meeting, State College, Pa., June 8-9.

★ Electrical Equipment Committee, Spring Meeting, Roosevelt Hotel, Pittsburgh, Pa., June 13-14.

★ Relay Subcommittee, Spring Meeting, Fort Bedford Inn, Bedford, Pa., June 16-17.

New Jersey Utilities Association
Spring Meeting, Seaview Country Club, Absecon, N. J., May 20.

Edison Electric Institute
Commercial Electric Cooking Conference, Madison Hotel, Atlantic City, May 25; Annual Meeting, Traymore Hotel, Atlantic City, May 31-June 2; Hydraulic Power Committee, Shirley Savoy Hotel, Denver, Colo., June 22-25.

Northwest Electric Light & Power Association
Personnel Section, Benjamin Franklin Hotel, Seattle, Wash., May 25-27; Accounting & Business Practice Section, Vancouver Hotel, Vancouver, B. C. June 23-24.

Pacific Coast Electrical Association
Annual Meeting, Coronado Hotel, San Diego, Calif., May 25-27.

Canadian International Trade Fair
Exhibition Grounds, Toronto, Ont., May 30-June 10.

Conference on Protective Relaying
Under Auspices of Georgia Tech Engineering Extension Division, Georgia Institute of Technology, Atlanta, Ga., June 16-17.

Public Utilities Advertising Association
Annual Meeting, Netherland Plaza Hotel, Cincinnati, Ohio, June 20-21.

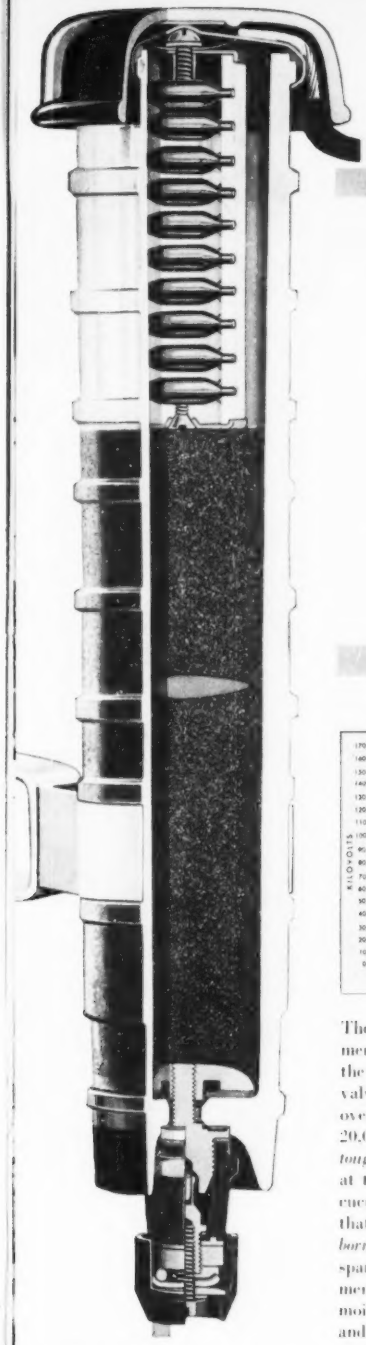
American Institute of Electrical Engineers
Summer General Meeting, New Ocean House, Swampscott, Mass., June 20-24; Pacific General Meeting, Fairmont Hotel, San Francisco, Calif., August 23-26.

American Society for Engineering Education
Annual Convention, Rensselaer Polytechnic Institute, Troy, N. Y., June 20-24.

American Society for Testing Materials
Annual Meeting, Chalfonte-Haddon Hall Hotel, Atlantic City, June 27-July 1.

Canadian Electrical Association
Annual Meeting, Banff Springs Hotel, Banff, Alberta, Canada, June 28-30.

★ Additions this week.



"The Isolator" L-M's patented extra-protection that makes it impossible to ground feeders, no matter *what* happens to the arrester. It's standard equipment on the type E.

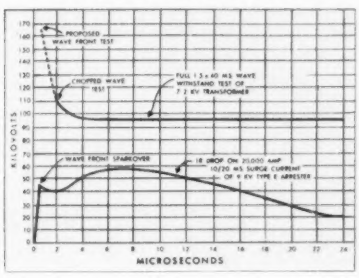
goldfish bowl— for lightning!

that's our L-M HEAVY DUTY VALVE TYPE ARRESTERS

We put these L-M heavy duty valve type arresters out in glass*, right in front of everybody. So these arresters get no privacy. They've *got* to be good—and they are!

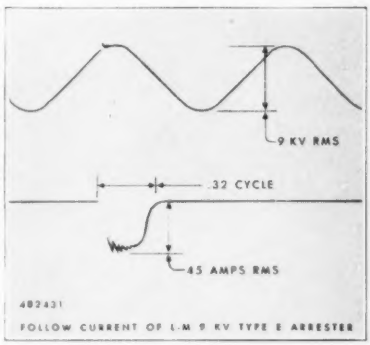
*tough *Pyrex* ® that won't break, shatter, or crack—don't worry about that!

PROTECTION? PLENTY!


PROPOSED NEMA WAVE FRONT TEST
CHOPPED WAVE TEST
FULL 1.5 x 40 MS WAVE WITHSTAND TEST OF 7.2 KV TRANSFORMER
WAVE FRONT SPARKOVER
IR DROP ON 20,000 AMP 10/20 MS SURGE CURRENT OF 9 KV TYPE E ARRESTER
KILOVOLTS
MICROSECONDS

The curves show NEMA standards requirements for transformer impulse strength, and the sparkover of the 9 kv L-M heavy duty valve "type E" arresters. Note the low sparkover on steep front waves, the IR Drop on a 20,000 amp 10/20 MS surge current. *Plenty tough*, these arresters. They just bare their teeth at the steep front surges, and stay cool as a cucumber through the hot, long tailed surges that would just "fry" a weak arrester. *Stubborn, too.* They just *won't* change their low sparkover. The "Gramulon" characteristic element doesn't change; the gap doesn't burn off; moisture doesn't get in through the double top and bottom seals. (If it ever *should*, you could see it in a glance through the "goldfish bowl.") They just go on for years and years, and we're proud of them!

Follow Current? Doesn't amount to shucks in this "type E" arrester, as you can see. Never lasts more than half a cycle, if that long! You can go right ahead and coordinate your fuses—this arrester won't even give them a warm moment.



Has ample *discharge capacity*, too, for anything that comes along. About the only thing that can bother it is a *direct stroke*—which would probably really fix it up so we'd have to sell you a new arrester. Sizes 3, 6, 9, 12, and 15 kv.

What every buyer should know about valve type lightning arresters—all in this factual data book. *Get a copy from the L-M Field Engineer or Line Material Co., Milwaukee 1, Wisconsin.*

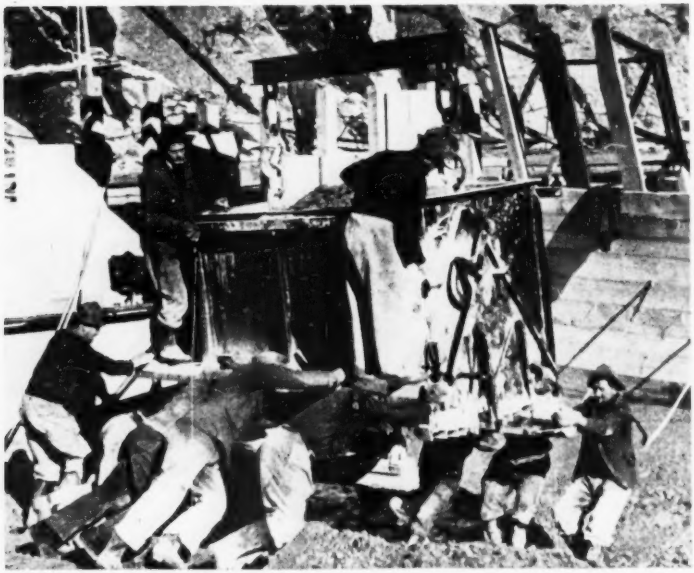
LINE MATERIAL Lightning Arresters

Complete Coordinated Equipment for All Distribution Requirements

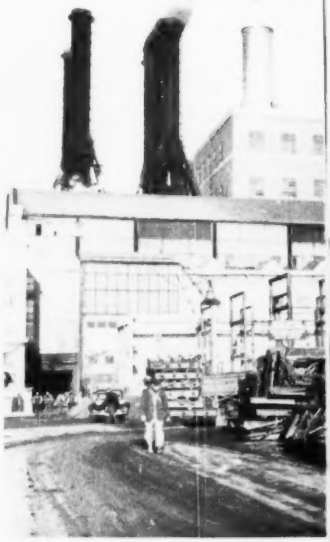
EUROPEAN POWER PRO

"MORE POWER FOR AUSTRIA—WORK AT KAPRUN" invites the poster. Such posters are on display all over the country to recruit workers. One inducement is, as usual, good food

CABLE CARS carry workers and equipment Alpi
The dam and plant are being built by the gove . Ou



WORKMEN AT KAPRUN DAM spot a conveyor of concrete. Austrian factories are producing 200,000 metric tons of cement, 14,000 tons of steel, and 30,000 cubic meters of timber for Kaprun

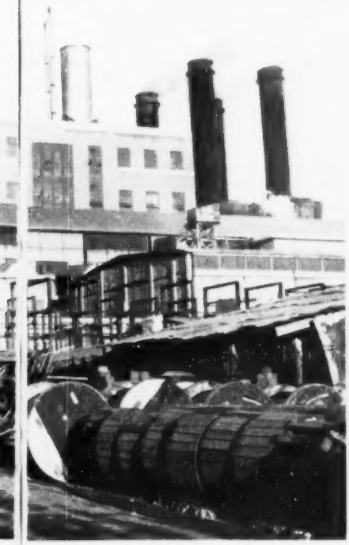


GENEVILLIERS PLANT in the suburbs o , wi
of them is American made. The Economic ratio

JECTS

Alpine slopes to the Kaprun power projects. Output expected is 600 million kwhr a year

ABOVE the Moserboden Dam in Austria a conveyor moves supplies to the Kaprun power project. Transportation difficulties are great because of the mountainous country and absence of roads



will have two 100,000-kw generators. One ration Administration is aiding in financing

GENISSIAT DAM crosses the Rhone 30 miles from Lake Geneva, which serves as a reservoir. The dam is 300 ft long and 190 ft high and is the largest in western Europe. Plant will have six units

YOU CAN BE **SURE**.. IF IT'S

Westinghouse

Here's Better Protection for Low-Voltage Circuits

The NEW "DB"

It's a completely new breaker, designed for severe, continuous duty as the protective link between the power source and your productive equipment. Its many features are all planned to provide minimum maintenance throughout a long operating life:

New Overcurrent Tripping Device—Hermetically-sealed overcurrent trip provides time-delay on overloads, plus instantaneous tripping on fault currents. Short time-delay characteristics on fault currents for selective tripping when specified.

All-Metal Mounting Base—Provides a strong, rigid foundation for all parts.

Unit Construction—All attachments and parts easily removed as a unit.

"De-ion" Arc Interruption—For quick arc extinction . . . longer contact life.

Easier Installation—Smaller size . . . easier to work around. Free standing when unmounted.

Long Operating Life—Moving and wearing parts of hardened stainless steel. J-60719

Here's COMPLETE Information

Get answers to your questions, plus complete, detailed information from the new DB Breaker Book. Ask your Westinghouse representative or distributor for your copy of B-4067, or write Westinghouse Electric Corporation, P.O. Box 868, Pittsburgh 30, Pa.

Westinghouse

"DE-ION" CIRCUIT BREAKERS

New Type DB

FCC Rule Change Would Restrict Use of Carrier

The Federal Communications Commission is proposing to amend its rules governing "restricted radiation" devices which would subject carrier current systems to FCC regulation, restrict the use of carrier to a radio frequency band of 10-200 kc, and limit radiation from such systems.

FCC's proposal points out that since the use of restricted radiation devices will be a potential source of harmful interference to recognized radio services, it will be necessary to adopt some system of regulation. "Such regulation," the FCC says, "may take the form of certification, type approval, registration and/or licensing, whichever appears to be the most practicable for any given type of operation".

Use of the radio spectrum by such restricted radiation devices as carrier would be restricted under the proposed amendment to the 10 to 200 kc band. In this band carrier current systems will be limited to radiation of 15 microvolts per meter at a distance of lambda over two pi (157,000 ft divided by the frequency in kilocycles) from the line radiator.

FCC states that any person may file with the Commission on or before June 1, a statement or brief setting forth his comments in regard to the proposed amendments of the Commission's rules.

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Overhead Transmission Wins Bay State Approval

Boston Edison Co now can build its 110-kv line between Waltham and Framingham, Mass., overhead. The line will form an important portion of an inner transmission ring around the metropolitan area. Residents of suburban Lincoln, Wayland, and Sudbury argued for underground construction at hearings conducted by the Massachusetts Department of Public Utilities.

After hearing that underground construction would cost $933,224 more and that carrying charges alone would be $116,424, the state board approved overhead construction. The proposed line will be 16.6 miles long, with wood pole construction.

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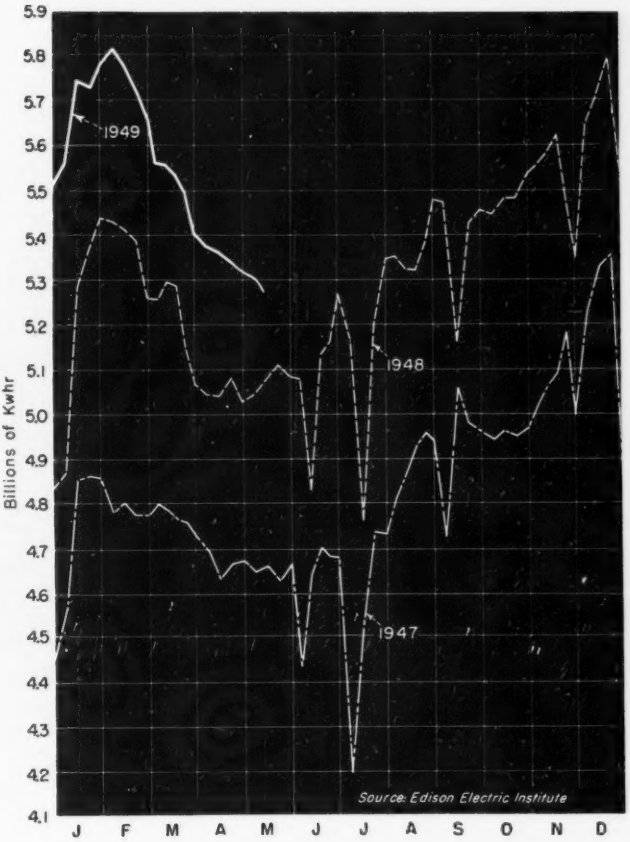
Joins AP&L System

Calico Rock, Ark., has been joined to Arkansas Power & Light Co's power network by a new 13.8-kv line. AP&L acquired the town's electric system several months ago.



Electric Output Takes Sharp Drop

During the week ended May 7, 1949, the electric output moved sharply downward to the lowest point since the Labor Day week of 1948. The amount of electrical energy distributed by the light and power companies of the country amounted to 5,283,592,000 kwhr, according to figures released by the Edison Electric Institute, comparing with 5,303,841,000 kwhr for the preceding week.

The total output during the corresponding week last year amounted to 5,087,264,000 kwhr, this year's figure representing an increase of only 3.9%. This percent change was a considerable drop under that reported for the week ended Apr 30, when a 5.2% increase was shown.

Both the New England and the Mid-Atlantic States remained in the minus column, with increased losses—the former, 2.2% compared with 1.6%; the latter 2.3%, compared with 0.9%.

The largest individual increase was again reported by the Pacific Coast states with a 13.7% gain.

Weekly Output, Millions Kwhr

1949		1948		1947	
May 7	5,284	May 8	5,087	May 10	4,653
Apr 30	5,304	May 1	5,042	May 3	4,640
Apr 23	5,326	Apr 24	5,027	Apr 26	4,668
Apr 16	5,343	Apr 17	5,087	Apr 19	4,660
Apr 9	5,360	Apr 10	5,033	Apr 12	4,620
Apr 2	5,378	Apr 3	5,037	Apr 5	4,693
Mar 26	5,404	Mar 27	5,065	Mar 29	4,729
Mar 19	5,496	Mar 20	5,145	Mar 22	4,759
Mar 12	5,531	Mar 13	5,285	Mar 15	4,764
Mar 5	5,552	Mar 6	5,293	Mar 8	4,787
Feb 26	5,559	Feb 28	5,252	Mar 1	4,797
Feb 19	5,650	Feb 21	5,254	Feb 22	4,778

Percent Change from Previous Year

	May 7	Apr 30	Apr 23
New England	— 2.2	— 1.6	— 2.2
Mid-Atlantic	— 7.3	— 0.9	— 0.6
Central Industrial	+ 0.3	+ 3.9	+ 6.3
West Central	+ 8.0	+ 8.4	+11.0
Southeast	+ 5.0	+ 7.2	+ 8.9
South Central	+ 9.1	+ 7.7	+ 5.0
Rocky Mountain	+13.4	+11.7	+ 8.8
Pacific Coast	+13.7	+12.1	+11.7
Total United States	+ 3.9	+ 5.2	+ 5.9

IN THE INDUSTRY

RICHARD N. LARKIN

THE SPENCE BILL is dead. Long live the Spence Bill.

The Spence Bill, everyone ought to know by now, is a massive legislative proposal whereunder President Truman's anti-inflation controls were combined with authority for the federal government to make loans for the expansion of basic industrial capacity. It included authority for government to build such new capacity if private enterprise wouldn't.

Comes now the intelligence that a new Spence Bill is being readied—without the inflation preventives of the original. But it retains federal authority to expand the capacity of any industry which federal planners feel will be unable to satisfy the demands of a fully-employed, high-income-level economy.

According to *Business Week*, a sister McGraw-Hill publication, prospects for the new bill look like this:

"As we said, the new Spence Bill won't be voted this year. But it will still be around next year, or until it does get a hearing. Ideas just don't die in Washington."

It certainly is true that ideas just don't die in Washington. The "government-plant" concept of the Spence Bill—refined from the original—is an old one. One certainly can recall the "yardstick" concept in electric power. And it wouldn't take much perusal of wartime newspapers to uncover substantial publicity for the idea that government should operate some of those defense plants after the war—to make jobs for those 8,000,000 unemployed we were going to have; to fill the shortages of consumer goods which would exist at the war's end and which wouldn't be filled by private industry because capital would choose to perpetuate a scarcity economy; to renew competition and give small business a chance; and to give labor leaders a greater share in the control of production. That was a sparkling dream of the labor professionals in Washington during the war. It never came off. But the dream didn't die. You have it today in the Spence Bill. The argument this time is that the exigencies of the cold war make government-plant authority a "must" for national defense, as well as social, reasons.

It would be foolish, though, to assume that nothing will be done on the government-plant concept until the Spence Bill is enacted. Federal planners strive hard for legislative validation of their ideas. But they are not halted by Congress' failure to go along. Their theory is simple: If one door's locked, try another. They can't all be shut.

So it is that one of the most vocal supporters of the government-plant concept, Interior Secretary J. A. Krug, dedicated two pilot plants for the production of synthetic petroleum last weekend. He declared that "this isn't government competition," and that "we want private industry to do the job." Quite possibly, the federal planners who want final authority over the capacity of our basic industries to rest in federal hands do, in fact, want private industry to do the job—now.

But on the federal record in housing and power, that oil man is a chump who imagines that these same federal planners always will want private industry to do the job.

TECHNICAL NOTES

ARCHER E. KNOWLTON

Dry ice—by the carload—can tide over the most critical food establishments whenever severe storms disrupts electric service.

Resumption current after an interruption can be studied oscillographically if arrangements can be made to open the feeder for half an hour except for five-second reading intervals every five minutes.

Circuit checking is facilitated if the installation drawings are supplemented by a separate sketch showing the connections for checking.

Electric steel melting furnaces are increasing because of the higher prices for oil and gas fuel.

Conductivity of poles in various stages of age, mutilation and wetness is something worth knowing more about.

Fluorescent lamps are reputedly less sensitive to motor-caused flicker than incandescents; is the difference enough to warrant recognition in choice of wire size and transformer rating?

Reserve pumps for condensate are being omitted by some because records and memory fail to recall to some a failure that justifies spares.

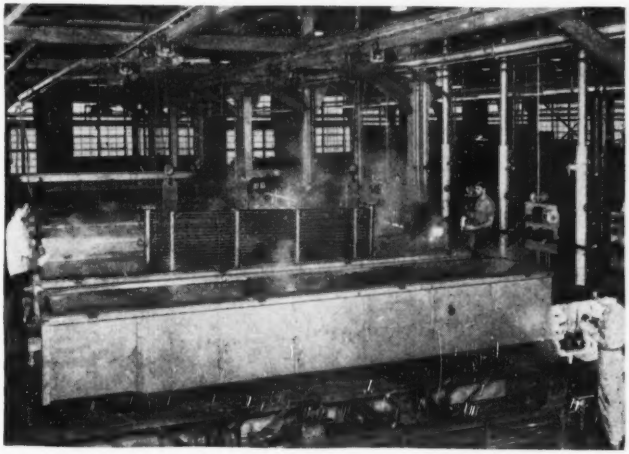
Station walls at up to 36¢ per laid brick are prohibitively costly compared with insulated panel construction, particularly for temporary faces.

Control circuits should be visualized and laid out at the very beginning of design—not as an afterthought—otherwise the routes may run into congestion or inordinate length.

Vibrator units are gaining in favor as power supplies for mobile transmitters and receivers.

Arcing time is felt to be the greatest unknown variable in fuse behavior.

MANUFACTURERS and MARKETS



NEW EQUIPMENT recently installed at Allis-Chalmers Pittsburgh Works to facilitate transformer production includes a bonderizing system for the surface treatment of fin-type radiators up to 18 ft long. The bonderizing process converts metallic surfaces to a non-metallic phosphate coating to inhibit corrosion and increase the adhesion and durability of the paint finish which is later applied

India Gets Westinghouse GE Equipment Orders

One of India's largest postwar orders for electric equipment, including 150,000 kw power generating apparatus and other equipment, has been placed with the International General Electric Co.

The apparatus will be part of the projected $25,000,000 Bokaro steam power station of the Damodar Valley Corp, which was established to implement India's long-range program of electrification of industrial and agricultural areas.

The proposed station will be located about 200 mi west of Calcutta at the junction of the Bokaro and Konar Rivers, and, when completed, will more than double the present power supply for that area of India. Besides serving coal fields and iron and steel mills in the vicinity, the station is expected to furnish power for new industries and to encourage modernization of agricultural methods.

Included in the order are three 50,000 kw GE turbine generator sets, three large power transformers, switchgear, motors, and other equipment, plus engineering services required to place the station in operation.

Westinghouse Electric International Co has entered into an agreement with the government of the East Punjab province in India for the design and equipment of a 110,000-kva hydroelectric power project on the Sutlej River. Equipment for the project will cost approximately $9,000,000.

The project will consist of two major waterwheel turbine-generator installations, designated Nangal I and Nangal II, six miles apart. Each will have two 33,500 hp turbines and two 27,500-kva, 50-c generators, producing power at 11,000 volts.

Equipment for the Nangal power project will take approximately three years to manufacture, with Nangal I apparatus scheduled for shipment in two years. Westinghouse will provide key engineering personnel to supervise the erection of the equipment on the site.

Westinghouse undertook the design of the plant with the assistance of American and Indian consulting engineers and American equipment manufacturers.

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Nevada First U. S. Inland Free Port Under New Law

An in-transit storage law, designed to save money for shippers, now makes Nevada the United States' first inland free port.

The law, sponsored by the Reno Chamber of Commerce, and passed by the last session of the Nevada State legislature, covers "any property, goods, wares, or merchandise—consigned to a warehouse within the state of Nevada, from outside the state of Nevada, for storage or assembly in transit to a final destination, whether specified when transportation begins or afterwards." Property specified in the law is presumed to be exempt from local taxation.

The need for a western fob point for eastern and midwestern manufacturers has become increasingly evident in the last few years. The new law will permit carload shipments, with consequent lower freight rates, to a central western distribution point.

Packers of the West do their work in a short season, and then supply eastern states throughout the year. With the new Nevada law, packers can ship directly from their production lines to Nevada for storage until ready for shipment to a final destination.

•

Cochrane Corp Acquires Liquid Conditioning Corp

Cochrane Corp, Philadelphia, has announced the acquisition of substantially all of the capital stock of Liquid Conditioning Corp, Linden, N. J. Liquid Conditioning will operate as a wholly-owned subsidiary of Cochrane and the products of the former, comprising a complete line of equipment for the conditioning of water and other liquids, marketed under the trade name "Liquon", will continue to be sold under that name.

The engineering, sales and technical staffs of the two corporations will augment each other. "Liquon" district sales offices are combining op-

erations with existing Cochrane sales offices, thus further strengthening the field organizations of both corporations.

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Manufacturers Make New Sales Assignments

Electrical manufacturing companies have recently made the following appointments to their sales staffs:

Electric Service Manufacturing Co. Philadelphia, has moved its Chicago offices from 111 N. Canal St to Railway Exchange Building. Everett G. Parmele, formerly of the Dallas office, has been made district manager of the Chicago office. L. S. Belding, for some time on the inactive list, because of ill health, has assumed charge of the Atlanta (Ga.) office.

Westinghouse Lamp Division has appointed Carl R. Busch district sales engineer for the Eastern District. Mr Busch will travel throughout New York State and northern New Jersey from his headquarters at 40 Wall St, New York.

Marcus Transformer Co. Inc, Hillside, N. J., has appointed the W. R. Hendrey Co, Smith Tower, Seattle 4, Wash., as territorial representative for the states of Washington and Oregon. Apex Electrical Manufacturing Co, Cleveland, has appointed Earl L. Bosley as Cleveland division sales manager.

Clarostat Mfg Co. Dover, N. H., has appointed Young & Myers, 539 Jewel Ave, Kirkwood 22, Mo., as sales representatives. They will cover eastern Missouri and southern Illinois south of and including Quincy, Springfield, Champaign, and Danville.

Line Material Co. Milwaukee, has appointed John W. Ridenbaugh field engineer in New Mexico and several counties in west Texas.

•

Plans Production in June

Production will get underway in June at the new Kaiser aluminum rod, bar, wire and cable mill at Newark, Ohio. D. A. Rhoades, vice-president and general manager of the Permanente Metals Corp, has announced. The completed plant will have an annual capacity in excess of 100,000,000 lbs of electrical conductor material.

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Moves General Offices

Ward Leonard Electric Co. Mount Vernon, N. Y., has moved its general office from the factory building at 31 South St to a new office building at 115 south MacQuesten Parkway, Mount Vernon. The new general office includes executive and sales offices and the company's headquarters for all operations.

NEW ELECTRICAL CONSTRUCTION

A weekly selection of U. S. electrical construction projects announced by private and government utility systems involving more than $70,000. Also listed are major industrial and construction jobs where electrical work is indicated or implied

UTILITIES

Proposed Construction

Alabama—Cullman Electric Co-operative, Cullman, 120 mi. rural distr. lines, Cullman Co. Plans deposit $25. Lanier Eng. Co., P. O. Box 453, Troy, engr.

Ala., Gorgas—Commonwealth of Southern Corp., 600 N. 18 St., Birmingham, steam electric plant, 6th unit exten., for Alabama Power Co.

Arizona and Nevada—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Kingman (Louise), Ariz., transformers, resistors for Davis Power Plant, Davis Dam Proj., Spec. 2650. L. N. McClellan, ch. engr.

Georgia—Amicalola Electric Membership Corp., Jasper, 245 mi. rural distr. lines and sys. imprvs., Pickens Co. **$490,000.**

Indiana—Steuben Co. Rural Electric Membership Corp., Angola, 31 mi. rural distr. lines, headquarter facilities, sys. imprvs., Steuben Co. **$195,000.**

Indiana—Harrison Co. Rural Electric Membership Corp., Corydon, 17 mi. rural distr. lines, sys. imprvs., Harrison Co. **$120,000.**

Kansas—C. M. S. Electric Co-operative, Meade, 279 mi. rural distr. lines, sys. imprvs., Meade Co. **$110,000.**

Kansas—Flint Hill Rural Electric Co-operative Assoc., Council Grove, 174 mi. rural distr. line, sys. imprvs., Morris Co. **$610,000.**

Minnesota—Beltrami Electric Co-operative, Bemidji, 103 mi. rural distr. lines, sys. imprvs., Beltrami Co. **$360,000.**

Missouri—Atchison-Holt Electric Co-operative, Rockport, 48 mi. rural distr. lines, sys. imprvs., Atchison Co. **$280,000.** Hennington Eng. Co., Standard Oil Bldg., Omaha, Neb., consult. engr.

Missouri—Grundy Electric Co-operative, Trenton, 281 mi. rural distr. lines, Mercer, Putnam, Harrison, Grundy, Sullivan, Livingston and Linn Counties. $300,000. Frank Horton & Co., Lamar, engrs.

Missouri—Ozark Border Electric Co-operative, Poplar Bluff, 85 mi. rural distr. lines, sys. imprvs., Butler Co. **$150,000.**

Mo., St. Louis County—Union Electric Co. of Missouri, 315 N. 12 Blvd. St. Louis, Zone 1, rein.-conc. steel power generating plant, near junction of Meramec and Mississippi Rivers, southern part St. Louis Co. **$26,000,000.**

Montana—Bureau Reclamation, Dpt. Interior, Billings, one 2,000-kva and one 5-kva transformers, one 15,000-volt circuit breaker, one 69,000-volt and one 15,000-volt disconnecting air break switches, six 15,000-volt disconnecting switches, three 69,000-volt disconnecting fuses, one 7,500-volt fuse cutout and 3 current and 3 potential transformers, Sidney substation, Fort Peck Proj., Spec. R6-Bil-1. L. N. McClellan, ch. engr.

N. Y., Syracuse—General Electric Co., Seventh North and Hopkins Rd., 74,000 sq. ft. television tube plant, Electronic Park. **$1,000,000.**

Ohio—Tri-County Rural Electric Co-operative, Napoleon, 20 mi. rural distr. line and sys. imprvs., Fulton Co. **$230,000.**

Pennsylvania—Central Electric Co-operative, Parkers Landing, 84 mi. rural distr. line, headquarters facilities and sys. imprvs., Armstrong Co. $335,000.

S. D., Vermillion—State Bd. Regents, Pierre, power plant. $100,000.

Texas—Fannin County Electric Co-operative, Inc., c/o G. C. Hall, pres., Bonham, 209 mi. rural distr. lines Fannin, Hunt, Collins and Grayson Counties, etc., $250,000. Plans deposit $25. Freese & Nichols, 407 Danciger Bldg., Fort Worth, engrs.

Tex., Houston—Harris Co., c/o H. L. Washburn, and., Courthouse, and State Hy. Dpt., Austin, Sect. 1, tunnel under Houston Ship Channel near Morgans Point, between Baytown and LaPorte. $8,500,000. Parsons, Brinckerhoff & Macdonald, 51 Broadway, New York, N. Y., engrs. Jim Douglas, c/o State Hy. Dpt., Austin, engr.

Washington—Columbia County Rural Electric Assoc., Dayton, 44 mi. rural distr. line and sys. imprvs., Columbia Co. **$101,000.**

Washington—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Odair, one 72 in. ring-seal gate hoist, drive unit, position indicator, limit switch, seal-control valve and wrenches for station-service penstock, Grand Coulee Power Plant, Columbia Basin Proj., Spec. 2657.

Low Bidders & Contracts Awarded

Ill., Chicago—City Dpt. Purchases, Contracts & Supplies, City Hall, switchboards, electrical cabinets, conduits, wires, cables, etc., Contr. E-3, Dearborn St. Subway, to Klii-Bar Electric Co., 2261 Clybourn Ave., **$1,193,567.** Bids 3/10.

Iowa—Central Iowa Power Co-operative, Cedar Rapids, Sects 3 and 4, rural distr. lines, Proj. Iowa 83GT, Cedar Rapids, to Hoak Constr. Co., 631 63 St., Des Moines. **$615,406.**

Ia., Des Moines—Iowa Power & Light Co., 312 6 St., 10 story boiler house addn., 8 story turbine room addn., power plant, to A. H. Neumann & Bros., Hubbell Bldg., Approx. **$390,000.**

Ky., Henderson—City, City Hall, power and light imprvs., Contr. 10, turbine generators; Contr. 11, condensers; Contr. 12, steam generators, Burns & McDonnell, 95 and Troost Sts., Kansas City, Mo., engrs.

Minnesota—Rural Co-operative Power Assn., Maple Lake, Apr. 13, 244 mi. rural distr. lines, Pine, Chisago, Isanti, Sherburne, Mille Lacs, Meeker, Kandiyohi, Benton and Wright Counties, from Mo-Hugo Electric Co., Mankato. **$1,651,621.**

South Dakota—U. S. Eng., 1709 Jackson St., Omaha, Neb., furnishing, installing hydraulic turbines, Fort Randall Reservoir, Eng-25-066-49-172, to The Baldwin Locomotive Works, Eddystone, **$2,626,000.** Bids 3/8.

INDUSTRIAL, COMMERCIAL & PUBLIC BUILDINGS

Proposed Construction

N. Y., New York—New York Society for Relief of Ruptured & Crippled, 321 E. 42 St., Zone 17, 170 bed hospital on East River Dr. between 70 and 71 Sts. **$3,000,000.**

Wis., Madison—Bd. Regents University of Wisconsin, Madison, State of Wisconsin General Hospital at University of Wisconsin, $3,000,000. Plans deposit $25. Schmidt, Garden & Erikson, 104 S. Michigan Ave., Chicago 3, Ill., engrs. and archts.

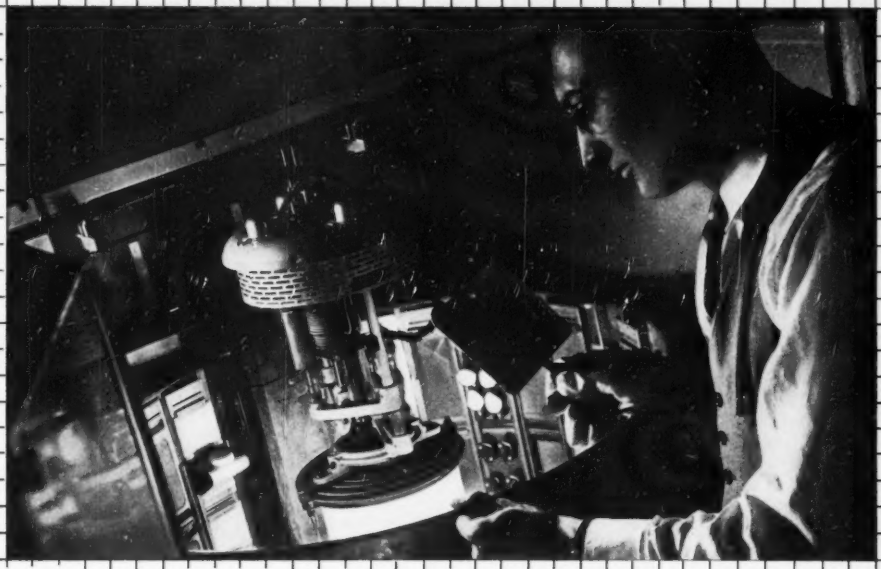
Low Bidders & Contracts Awarded

Ill., Cicero—Cities Service Oil Co., 70 Pine St., New York, 5, N. Y., plant unit, m.g. capacity, to Sumner S. Sollitt & Co., 307 N. Michigan St., Chicago. Approx. **$5,000,000.**

Mont., Butte—Butte Memorial Hospital Assn., Butte, 6 story, steel, concrete, brick, stone hospital, to George A. Fuller Co., 597 Madison Ave., New York 22, N. Y., Approx. $3,000,000. Bids 1/14.

QUALITY CONTROL DATA SHEET

SYLVANIA FLUORESCENT FIXTURES



Accelerated weather tests insure long-lasting enamel finishes on Sylvania fixtures

Heat, ultra-violet radiation, and humidity are relentless enemies of the enamel finishes used on fluorescent fixtures. At Sylvania's Ipswich plant, specimens of the Miracoat synthetic enamel finish for reflectors and chassis are constantly checked in the Weatherometer, shown above. The Weatherometer duplicates—in a few days—the atmospheric attack that breaks down or discolors ordinary enamels after a few years of actual service.

As a result of this "extra" quality control, Sylvania fixtures are famous for the lasting qualities of their Miracoat finish—which means that metal parts are protected from atmospheric attack, and reflecting surfaces maintain their rated reflectivity over the long life of the fixture.

Sylvania Electric Products Inc., 500 Fifth Avenue, New York 18, N. Y.

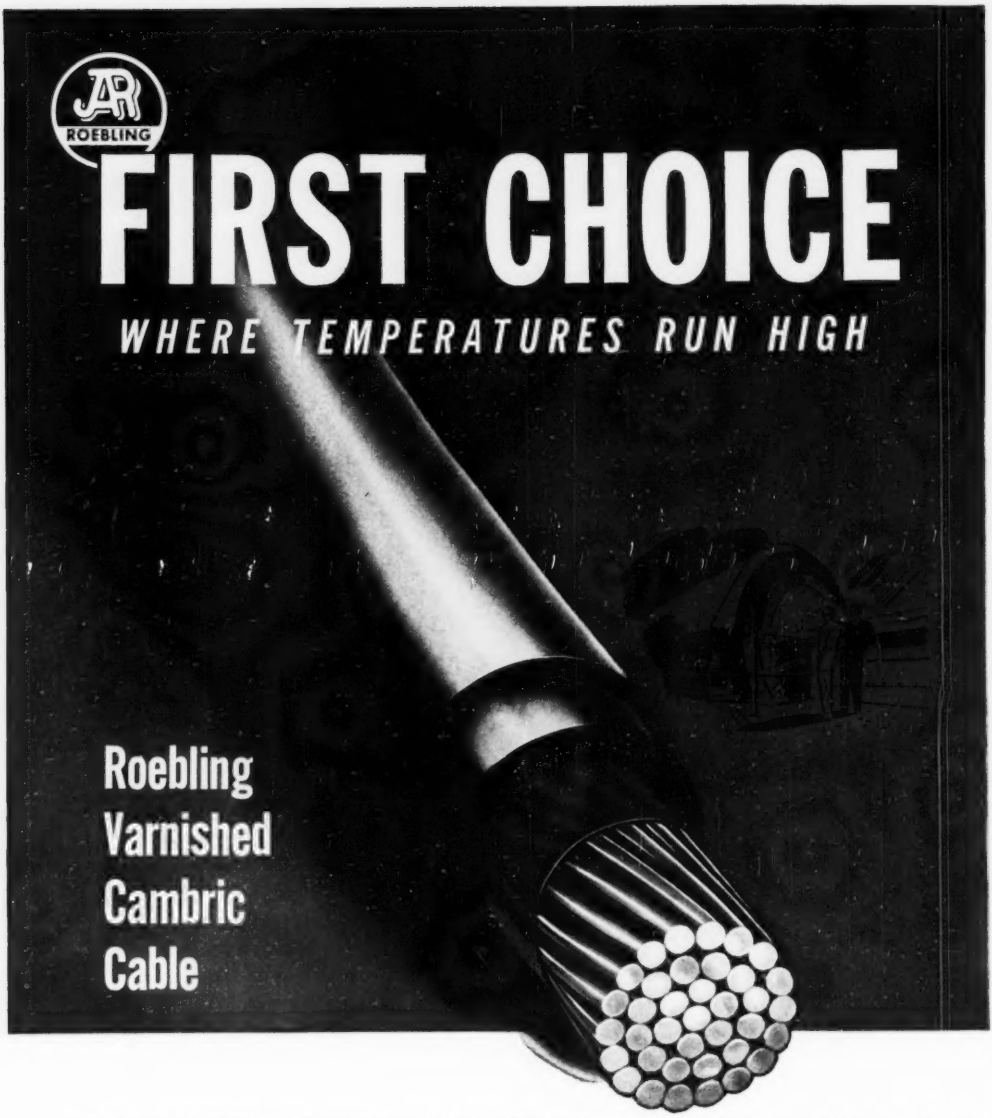
SYLVANIA ELECTRIC

FLUORESCENT LAMPS, FIXTURES, WIRING DEVICES, SIGN TUBING, LIGHT BULBS, PHOTOLAMPS, RADIO TUBES, CATHODE RAY TUBES, ELECTRONIC DEVICES

JAR ROEBLING

FIRST CHOICE

WHERE TEMPERATURES RUN HIGH



HEAT RESISTANCE YOU CAN COUNT ON

FOR TOPFLIGHT DEPENDABILITY where heat is a hazard, turn to Roebling Varnished Cambric Cable! You'll find it far superior to rubber-insulated cables for motor and generator leads and it is outstandingly adapted for transformer and oil switch leads.

Roebling Varnished Cambric Cable comes in single and multiple conductor types—single, from 2,000,000 C. M. to No. 14 A.W.G. Designed for use up to 17,000 volts between phases for unshielded multiple conductor . . . up to 21,000 volts between phases for single conductor and shielded cables on ungrounded neutral systems . . . up to 28,000 volts between phases for single conductor and shielded cables on grounded neutral systems.

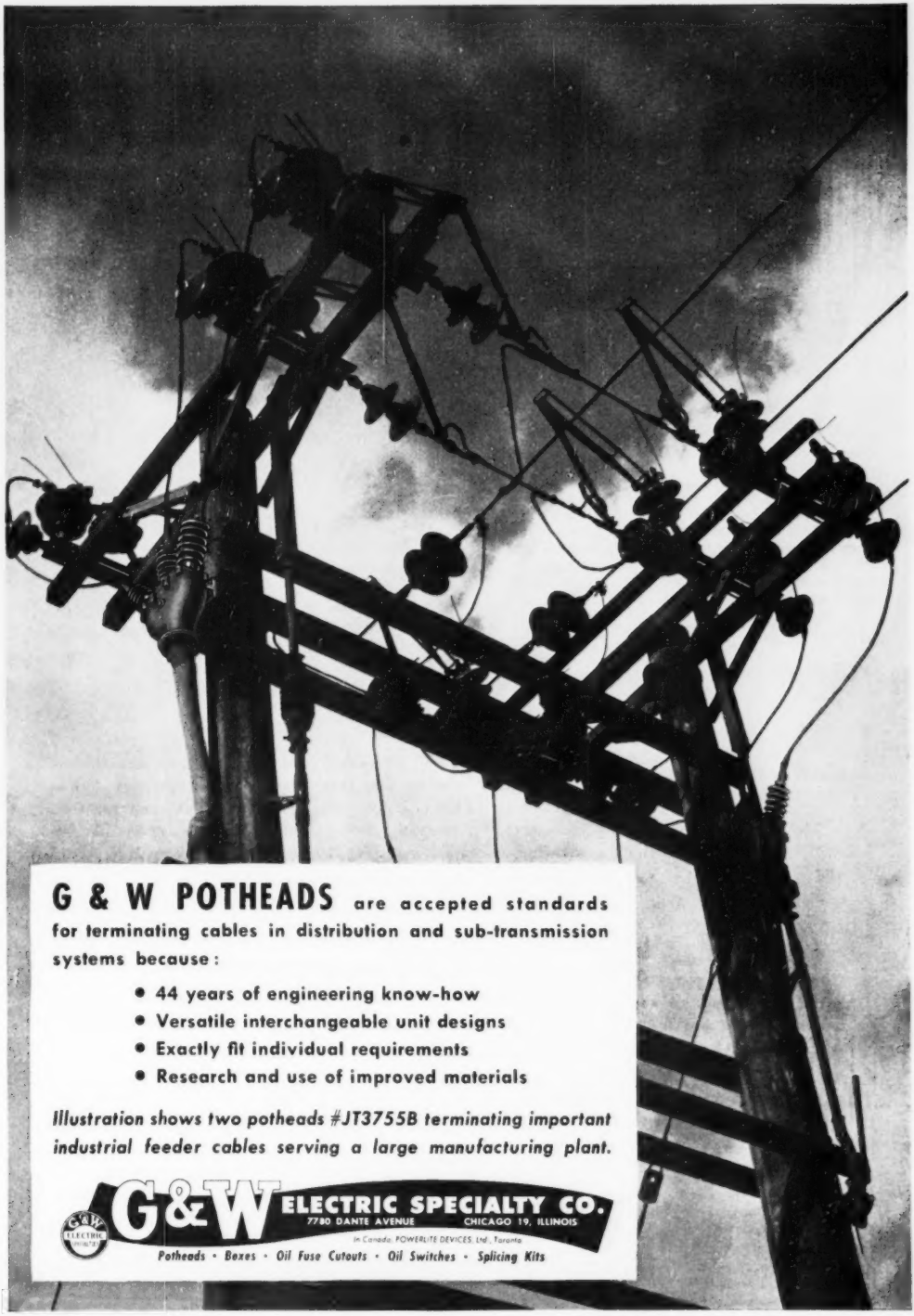
Write for full information, or get in touch with your Roebling Distributor who will gladly help. John A. Roebling's Sons Company, Trenton 2, N. J.

WRITE OR CALL THE ROEBLING FIELD MAN AT YOUR NEAREST ROEBLING OFFICE AND WAREHOUSE

Atlanta, 934 Avon Ave. ★ ***Boston,*** 51 Sleeper St. ★ ***Chicago,*** 5525 W. Roosevelt Rd. ★ ***Cleveland,*** 701 St. Clair Ave., N. E. ★ ***Denver,*** 1635 17th St. ★ ***Houston,*** 6216 Navigation Blvd. ★ ***Los Angeles,*** 216 S. Alameda St. ★ ***New York,*** 19 Rector St. ★ ***Philadelphia,*** 12 S. 12th St. ★ ***Pittsburgh,*** 855 W. North Ave. ★ ***Portland, Ore.,*** 1032 N.W. 14th Ave. ★ ***San Francisco,*** 1740 17th St. ★ ***Seattle,*** 900 First Ave.

ROEBLING

☆ A CENTURY OF CONFIDENCE ☆



G & W POTHEADS are accepted standards for terminating cables in distribution and sub-transmission systems because:

- 44 years of engineering know-how
- Versatile interchangeable unit designs
- Exactly fit individual requirements
- Research and use of improved materials

Illustration shows two potheads #JT3755B terminating important industrial feeder cables serving a large manufacturing plant.

G&W ELECTRIC SPECIALTY CO.
7780 DANTE AVENUE CHICAGO 19, ILLINOIS
In Canada: POWERLITE DEVICES, Ltd., Toronto

Potheads • Boxes • Oil Fuse Cutouts • Oil Switches • Splicing Kits

TO GET AT A BEARING ON THE ELLIOTT FABRI-STEEL 2-POLE MOTOR there's no need to take things apart in a big way. Simply back off two bolts and two cap screws and two dowels in the bearing cap, take it off, remove bearing dowels and lift off the upper half of the split sleeve bearing.

THE LOWER BEARING HALF comes out just as easily. With a pry bar under the boss on shaft end, raise shaft enough to take weight off lower half of bearing, roll it around to top of shaft, take it out from under the oil rings. On the coupling end, free the bearing by using a jack or rope sling under the coupling hub. The whole job takes ten or fifteen minutes—no more.

HOW'S THIS FOR accessibility

2 POLE FABRI-STEEL MOTORS HAVE—

- **The enduring strength of steel—**
- **The uniform air gap for maintained performance—**
- **Split-sleeve bearings for easy access—**
- **Dynamically balanced rotor for vibrationless operation—**
- **Rotor removable without taking off bearing bracket at coupling end of motor.**

THIS line of big, all-welded steel 2-pole motors was designed with many new features that simplify maintenance as well as making a lot less of it necessary. Stators are built up of heavy steel members for strength, rigidity, and to dampen out double frequency, vibration and noise. Bearing brackets too are of steel, stiff and unyielding, maintaining the relative positions of rotor and stator without change or variation in air gap. It's a new way to build motors and it's making engineers happy in many plants where these motors are setting new standards in smooth, quiet, vibrationless operation.

Built 250 to 3500 hp. inclusive — drip-proof, splash-proof, enclosed (forced) ventilated, enclosed self (pipe or base) ventilated, enclosed self-ventilated with built-in coolers. Write Dept. EN for bulletin PB-7000-1.

ELLIOTT COMPANY
DEPT. EN, RIDGWAY DIVISION, RIDGWAY, PA.
Plants in JEANNETTE, PA. • RIDGWAY, PA. • SPRINGFIELD, OHIO
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L-791

Elliott FABRI-STEEL Motors

NEWS ABOUT PEOPLE

San Diego Utility Elects A. E. Holloway President

(See Front Cover)

L. M. Klauber has moved up from president to chairman of the board of San Diego Gas & Electric Co. and A. E. Holloway, formerly vice-president in charge of sales, has been elected president.

The change in top management of the utility company came in an organizational meeting following the recent annual stockholders' meeting. Hance H. Cleland, who is reaching the company's age of retirement, asked that he be relieved of the position as chairman of the board. He will continue as a director.

L. M. KLAUBER

The position of vice-president in charge of sales, which Mr Holloway filled, has been taken by H. G. Dillin.

The new chairman and president of San Diego Gas & Electric both started their careers with the company direct from college and special training courses in electrical engineering. Mr Klauber started as a salesman in 1911 and progressed to engineer of records, superintendent of the electrical department, assistant general superintendent, general superintendent, vice-president and general superintendent, vice-president in charge of operations, vice-president and general manager and, since 1946, president.

After a year of apprenticeship work with Westinghouse, Mr Holloway went West and joined the San Diego utility's sales force in 1910. He was made a director of the company in 1911, commercial superintendent in 1921, and vice-president in charge of sales in 1932.

H. G. DILLIN

Mr Dillin goes to the vice-president's position from commercial manager, a position to which he had been appointed late last year. Mr Dillin started with the company in 1924 as a draftsman and transferred to appliance sales two years later. In 1932 he was appointed engineer in charge of rates, rules and regulations.

•

I. Thomas McKillop has succeeded Frank A. Dawes as chief of the REA management division. Mr Dawes resigned late in February to enter private business. Mr McKillop brings to his new position a background of experience in business administration and management. He was senior partner in a management engineering firm for several years before joining REA. Since then, as management engineer on the Administrator's staff, he has worked closely with the line divisions and co-op officials in developing ways for meeting the needs of the co-ops.

P. T. Baird, district superintendent for Consumers Public Power District at Norfolk, Neb., since 1937, has been named assistant general superintendent of Consumers with headquarters at Lincoln. Mr Baird will be replaced by **C. E. A. Johnson**, district manager of Consumers at Scottsbluff since 1946.

Maryland Utilities Group Elects Dunn President

R. Roy Dunn, vice-president and treasurer of the Potomac Electric Power Co, Washington, D. C., since 1947, was elected president of the Maryland Utilities Association at the recent annual meeting.

Mr Dunn joined the Washington utility in 1942 as assistant to the president. From 1935 to 1942 he was on the staff of the Securities and Exchange Commission.

Previously he was associated with the Northern Indiana Public Service Co, Hammond, Ind.; James Walker, Chicago; Leo Loeb, New York; and Arthur L. Mullergren, Kansas City, Kans., all consulting engineers.

Other officers elected include: First vice-president, Glenn T. Swisher, Potomac Edison Co; second vice-president, W. Griffin Morrel, C & P Telephone Co of Baltimore; treasurer, J. Carl Fisher, Consolidated Gas Electric Light & Power Co, Baltimore; and secretary, Raymond C. Brehaut, Rosslyn Gas Co, Arlington, Va.

R. ROY DUNN

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C. A. Robertson has been appointed engineer-in-charge of test and engineering calculations groups, Allis-Chalmers steam turbine department, and **W. F. Dueringer** has been named supervisor of service engineering, sales section. Both Mr Robertson and Mr Dueringer have been associated with A-C for many

years, the former with steam turbine research, testing, and field engineering since 1920, and the latter with steam turbine testing and service engineering since 1929. **Frank H. Stohr** has been named general manager of the company's Norwood Works. Mr Stohr was previously executive vice-president and a director of the Elliott Co, Jeannette, Pa. He succeeds **R. W. Davis**, general manager of the plant since 1944, who will serve in an advisory capacity.

•

Okonite Company Elects 3 New Vice-Presidents

Three new vice-presidents of The Okonite Co, Passaic, N. J., were appointed at the recent meeting of the board of directors.

They include I. W. Borda, who has been with the company since 1924 and

I. W. BORDA

who will continue as manager of the Pacific Coast district; W. R. Van Steenburgh, who joined the company

W. R. VAN STEENBURGH

in 1917 and who will continue as manager of the North-East sales district, and Stephen A. Wilson, who has been

STEPHEN A. WILSON

with the company since 1936 and who will continue in the capacity of secretary and general counsel.

•

T. J. Little Elected V-P of Pyle-National Co

Announcement has been made by the Pyle-National Co, Chicago, of the election of Thomas J. Little as vice-president in charge of the eastern division.

Mr Little, who succeeds A. N. Martin, recently retired, joined the company early last year. Previously he was associated with the Anaconda Wire & Cable Co, New York, in various capacities.

During the war period, Mr Little served with the New York Ordnance District and was on duty in Germany. He received the U. S. Army Ordnance Award for meritorious civilian service.

OBITUARY

Joseph R. Halladay

Joseph R. Halladay, vice-president and manager of the Ashland division of the Ohio Public Service Co, died of a heart attack on Mar 19. Only 54 years old, Mr Halladay had spent more than 34 years in the electric utility business with OPS and predecessor companies. He served in many capacities in Toledo, Warren, Cleveland, Mansfield and Alliance, before taking over as division manager in Ashland in 1933.

•

Ferdinand W. Burton, superintendent of the Appalachian Electric Power Co's Welch, W. Va., district, died in Grundy, Va., on Apr 20. Mr Burton had been with Appalachian Electric Power approximately 37 years and had been Welch district superintendent for the past three years. He was born in Grundy, Va., 56 years ago.

•

Addison W. Lee, Jr.

Addison W. Lee, vice-president in charge of operations of the Louisville (Ky.) Gas & Electric Co since 1932, died on May 1 at his home in that city after an illness of several weeks. He was 64 years old. Mr Lee had been active in the development of electric and gas facilities for 42 years.

He started with the Louisville Lighting Co as a construction inspector and was assistant superintendent at the time of the merger. He was placed in charge of the drafting department in the new Louisville Gas & Electric Co and soon rose to assistant general superintendent. He was named general superintendent in 1926. Since becoming vice-president in charge of operations in 1932, Mr Lee had taken a leading part in the development and expansion of the company.

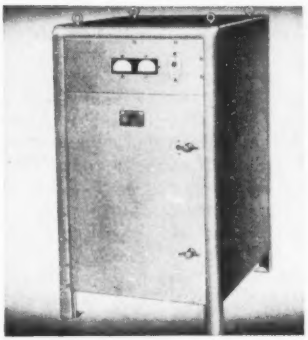
•

Herbert H. Holding, for many years general power representative of the Public Service Electric & Gas Co, Newark, N. J., died on Apr. 28 at his home in North Plainfield at the age of 81. Mr Holding had retired on pension from Public Service in 1937. He joined the Public Service staff in 1912 as a power representative. He obtained his early experience with General Electric as erection engineer and later became chief engineer for the Lorain Steel Co. From 1898 to 1909 he was a consulting and contracting engineer in Cleveland, Ohio, later becoming identified with Westinghouse. After his retirement from Public Service, Mr Holding served as a consultant for J. J. Garibaldi Co, industrial realtors in Hoboken, N. J.

Lee S. Washington, agency and specialties division manager, Westinghouse Electric Corp in St. Louis, died on Apr 9. He was 58 years old. Mr Washington had been associated with Westinghouse for 35 years. He was a former president of the St. Louis Electrical Board of Trade.

Dr Aristide Fanti, scientific librarian of the National Bureau of Standards from 1910 to 1938, died on Apr. 5 in Cheverly, Md., after a brief illness. Dr Fanti was born in Carpi, Italy, in 1868. He joined the Bureau of Standards shortly after its library was established.

NEW EQUIPMENT



Battery Charger

For on-the-spot charging of industrial truck batteries, a Rectox copper oxide battery charger featuring saturable reactor control is manufactured by Westinghouse Electric Corp, Box 868, Pittsburgh 30, Pa. Charging cycle is automatic following selection of rate by turning a dial.

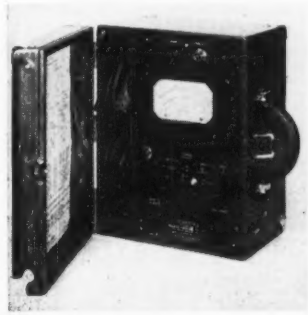
Charger is available as combination unit to charge either lead-acid or nickel-alkaline batteries in less than eight hours. By adding plug-in control panel, changeover for charging either type of battery may be accomplished in the field. Charger operates on 230 or 460 v.

•

Insulation Tester

For measuring insulation resistance of power plant, substation and underground equipment, an electronic rectifier type, dual-voltage, three-range instrument—Model 101 Megotron—is manufactured by J. W. Dice & Co, Grand View-on-Hudson, N. Y. The instrument is adaptable to short time tests or dielectric absorption tests of any duration.

Operating from a 110-130-v, 50-60-cycle source, the unit supplies d-c test voltages of either 500 or 1,000 v, with ranges of 0.1-5, 3-200 and 15-2,000 megohms at 500 v and 0.1-5, 3-200 and 30-2,000 megohms at 1,000 v. Indicating element is locked by "off" position of selector switch to prevent wear during transportation.



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Fibre Conduit Spacers

Combination of even or odd multiples of fibre conduit installations are readily made using basic two-way Clevelon spacers developed by Fibre Products Division of Line Material Co, Milwaukee 1, Wis. Spacers are joined together by means of a locking device cast into each unit. One-way elements are made by sawing the basic spacer into two parts.

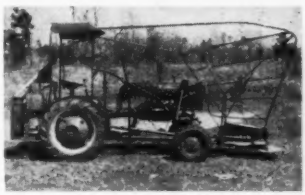
Consisting of asphalt and asbestos fibres molded together, the spacers are said to withstand a vertical flat crushing force of 1,200 lb. Spaces are available in six sizes for supporting from 2 to 4½-in. conduit.

•

Low-Cutting Saw Unit

Capable of cutting brush up to 6 in. in diameter at walking speed, a tractor-mounted saw attachment called the Brush-Master is available from H-P Mfg Co, Inc, Livingston, Texas. Consisting of two 30-in. diam saws clutched to and belt-driven by a 12-hp Wisconsin engine, the unit cuts brush and pushes it aside in one operation.

Operator controls height and leveling of saws with one lever. Attachment



may be mounted by one man in a short time. A self-cleaning push-type rake attachment (not shown) may be attached to saw head by removing brush guard and setting rake on saw head. Saw operating lever also controls raising and lowering of rake.

•

General Purpose Wire

For all hook-up and lead applications, free-stripping wire, with insulation comprised of vinyl dielectric with a closely braided, lacquered glass jacket, is produced by William Brand & Co, 276 Fourth Ave, New York 10, N. Y.

Known as Turbotherm REL-16A Insulated Wire, the wire has characteristics which include: Continuous operation for 300 and 600 v; operating range from −10C to +105C; and UL recognition. Test results and samples are available from the manufacturer.

•

Guide and Positioner

Automatic guiding and positioning of sheet materials in high-speed web and strip processing is provided by an integral electronic control device, the VSP camber (edge) control, announced by The Reliance Electric & Engineering Co, 1076 Ivanhoe Rd, Cleveland 10, Ohio.

Combining electronic elements with a rotating element, the unit permits continuous operation while accurately positioning strip at speeds as high as 3,000 ft per min and is said to be adaptable to applications unlimited in number where a position guiding control is desired. Bulletin K-2051 further describes this equipment.

ELECTRICAL BUSINESS OUTLOOK

UTILITY EARNINGS for the first quarter look good compared with last year. Net profit for the industry as a whole is estimated to have risen 8%. The gain would have been bigger, perhaps 10%, except for an extra day in 1948 (leap year), with its extra energy sales.

Gross revenues topped a billion dollars in the first three months to show an 8% gain over last season. Operating expenses (up 6%) and taxes (up 13%) also rose. But electric operating income was still about 11% ahead.

This means that the increase in gross revenues resulted in a somewhat greater increase in operating income. Revenues were helped both by greater power production and by rate increases. But an added gain came from greater fuel economy. Water conditions were very bad in 1948, and coal costs high. This year more hydro facilities were used and less coal. So costs per kwhr fell.

First quarter figures still don't fully reflect recent cuts in coal prices, since utilities generally compute coal costs on an average for several months past. So further improvement should show up in second quarter comparisons. Newer, more economical plants are also a factor in cutting fuel costs. And lower prices for fuel oil should continue to help some utilities.

However, it's not probable that earnings for the full year will top 1948 by as much as first quarter results indicate. Fuel costs were more normal in the second half of last year. And power sales were greater than in the early months. So 1949 results will have to be compared with a more profitable period, as we go into later months.

Moreover, there's still an uncertainty in the utility cost picture, wages. High profit figures encourage unions in demands for more pay. Whether labor costs are increased by higher wages or by higher welfare benefits, the result is to cut down profits. And some concessions to utility workers will probably be asked in the next few months.

Fixed charges are rising too, as the industry's debt structure grows. Interest and similar costs rose 10% in the first quarter over last year. Non-operating income has been off slightly. So less operating income is getting through to net. That means more need for higher operating revenues and lower operating costs.

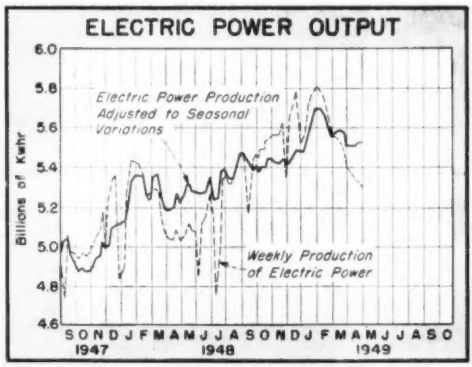
Best chance of continuing to improve the industry's profit picture still lies in rate increases. Power consumption is now increasing at a slower rate than formerly. So higher rates will be necessary to keep up the gain in revenues. The rate base is constantly expanding through new plant construction. And, unless costs drop sharply, more rate increases should be justified.

The longer-term outlook for power company earnings is the best in many years. It has been estimated that net plant account of Class A and B utilities will have increased 50% in the five years ended 1952. This would warrant much higher revenues than at present before the rate of return on investment became excessive.

It is possible, for these reasons, that the industry could over the next few years show a 25% rise in earnings for its common stock. This should more than offset the increase in shares outstanding resulting from prospective new financing. On the other hand, utility earnings would probably not drop much even in a business recession because of the growing basic demand for power.

POWER OUTPUT continued to slide in March and April. Some of the decline was due to spring weather. The seasonally adjusted curve, which discounts this factor, turned up in mid-April. But even after adjustment, production figures since January show the longest slump in well over a year.

One reason is the drop in industrial production. From 191 in January, the Federal Reserve production index dropped to 189 in February and 184 in March. Some of the latter drop was caused by the coal strike. But declines in other industries were sufficient to affect power sales. Unusually warm weather in the eastern states helped account for the more than seasonal decline.



Duraline's Right when the weather's wrong

Anaconda's Duraline URC Weatherproof gives vastly improved performance during emergency periods.

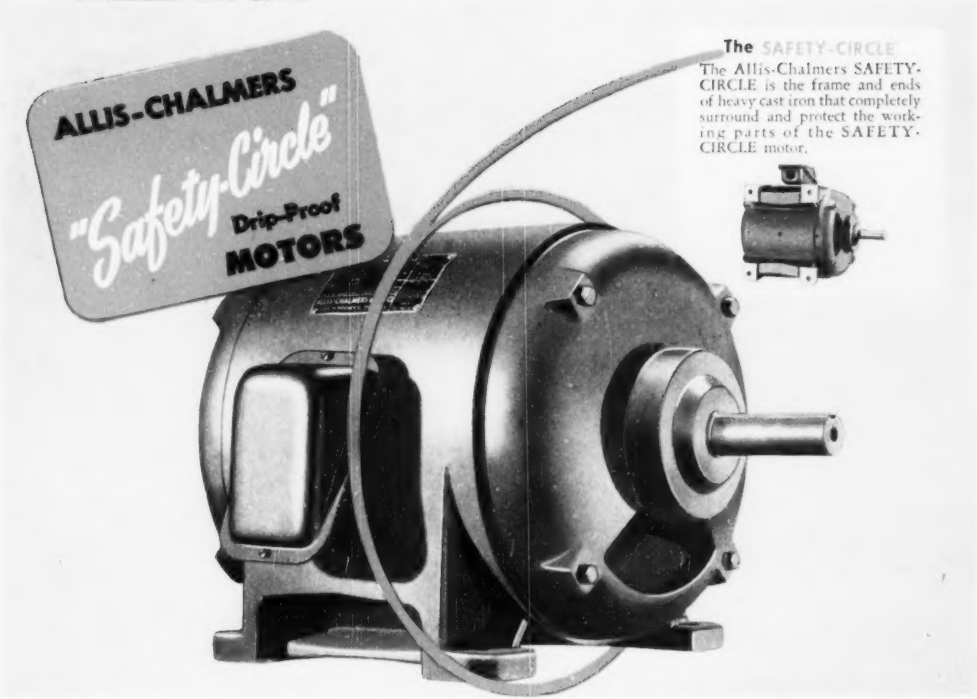
Its interlocked, felted layers . . . combined with time-tried URC saturants and finishers . . . *prevent moisture penetration* and protect against outages caused by foreign objects contacting the lines. Unsightly "festoons" will never be seen along "Duralines."

Specify Duraline for protection during emergency periods of adverse weather . . . and through the years . . . at no extra cost. Anaconda Wire & Cable Company, 25 Broadway, New York 4, N.Y.

ANACONDA
from mine to consumer

Duraline* URC WEATHERPROOF

STAYS PUT!


ALLIS-CHALMERS
"Safety-Circle"
Drip-Proof
MOTORS
The SAFETY-CIRCLE
The Allis-Chalmers SAFETY-CIRCLE is the frame and ends of heavy cast iron that completely surround and protect the working parts of the SAFETY-CIRCLE motor.

SAFETY-CIRCLE means

★ All-Around Protection ★ Low Maintenance ★ Dependable Performance

A-2690

THE SAFETY-CIRCLE MOTOR is protected all around against those four great motor killers — corrosion . . . distortion . . . friction . . . foreign matter. The frame is of cast iron, the most corrosion-resistant material for this purpose. The strength and stiffness of the cast iron is supplemented by ribbing and bracing to maintain alignment and prevent distortion. Ball bearings are lubricated and sealed at the factory. They require no attention for years. End brackets are drip-proof at no premium.

SAFETY-CIRCLE motors are fully protected inside, too. Multiple-dipped and multiple-baked stator plus extra inter-phase insulation provide extra protection against electrical breakdown.

With SAFETY-CIRCLE protection outside and protected working parts inside, you can count on years of trouble-free, low cost power.

For complete details on SAFETY-CIRCLE advantages, see your A-C Authorized Dealer or Sales Office or write for Bulletin 51B6210B. Stocked in sizes 1 to 20 hp. *Safety-Circle*, *Texrope* and *Vari-Pitch* are Allis-Chalmers trademarks.

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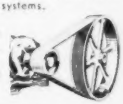

PUMPS — Integral motor and coupled types. Sizes and ratings to 2500 GPM.